

BRIEF REPORTS

Barriers to telehealth access among homebound older adults

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Abstract

Background/Objectives: To identify major barriers to video-based telehealth use among homebound older adults.

Design: Cross-sectional survey.

Setting: A large home-based primary care (HBPC) program in New York City (NYC) serving 873 homebound patients living in the community.

Participants: Sixteen primary care physicians.

Measurements: An 11-item assessment of provider perceptions of patients' experience with and barriers to telehealth.

Results: According to physicians in the HBPC program, more than one-third (35%) of homebound patients (mean age of 82.7; 46.6% with dementia; mean of 4 comorbidities/patient) engaged in first-time video-based telehealth encounters between April and June 2020 during the first COVID-19 surge in NYC. The majority (82%) required assistance from a family member and/or paid caregiver to complete the visit. Among patients who had not used telehealth, providers deemed 27% ($n = 153$) "unable to interact over video" for reasons including cognitive or sensory impairment and 14% lacked access to a caregiver to assist them with technology. Physicians were not knowledgeable of their patients' internet connectivity, ability to pay for cellular plans, or video-capable device access.

Conclusion: The COVID-19 pandemic resulted in a large and dramatic shift to video-based telehealth use in home-based primary care. However, 4 months into the pandemic a majority of patients had not participated in a video-based telehealth encounter due to a number of barriers. Patients lacking caregiver support to assist with technology may benefit from novel approaches such as the deployment of community health workers to assist with device setup. Physicians may not be able to identify potentially modifiable barriers to telehealth use among their patients, highlighting the need for better systematic data collection before targeted interventions to increase video-based telehealth use.

KEYWORDS

barriers, COVID-19, home-based, homebound, telehealth

Kate A. Moody is the co-first author.

INTRODUCTION

More older adults in the United States become homebound (never or rarely leave home) each year than enter nursing homes.¹ As such, home-based primary care (HBPC) is an increasingly adopted approach to delivering health care to older patients in the home,²⁻⁴ particularly those of whom experience disability, multimorbidity, cognitive impairment, and high rates of hospitalization.⁵ Video-based telehealth has emerged as an important care-delivery innovation within HBPC, especially during the COVID-19 pandemic. Not only does telehealth reduce costs, transportation, and time on the part of the patient, but the pandemic also has highlighted additional benefits such as reduced infection exposures.^{6,7} The federal government has recognized these benefits and implemented regulatory waivers and rule changes aimed at increasing telehealth accessibility, facilitating its rapid uptake since early 2020.⁸⁻¹¹

Video-based telehealth has been shown to be feasible within HBPC, and many different HBPC programs have increased telehealth utilization substantially since the start of the pandemic.¹¹⁻¹⁴ Studies of telehealth adoption among HBPC patients have demonstrated the complex interplay of patient-level barriers to access, such as individual interest, self-confidence, and technology access, and macro-level barriers to access, such as policy standards (e.g., HIPAA compliant platforms), software access, funding, and personnel.¹³

Although demand for video-based telehealth services is now high, adoption has been limited by disparities in access that can present obstacles to specific demographic groups. In 2017, 42% of New York City (NYC) adults over 65 lacked broadband internet access, compared to only 23% of adults aged 18 to 64. This disparity in internet access tracked closely with factors such as poverty, unemployment, and geographic location,¹⁵ indicating that older age may compound other drivers of inequality in access to telehealth.¹⁶

Older adults with broadband access may still struggle to use mobile devices, as vision, dexterity, and cognition slowly decline with age. Small font size, poor color contrast, and the requirement of fine motor skills when navigating devices used for video-based telehealth encounters can be challenging. As such, programs aiming to expand telehealth services to an older population may benefit from the use of devices with assistive qualities such as fewer buttons, automatic information transmission, and joint visual/audio guidance.¹⁷ But even with access to an appropriate device, some older adults may struggle from difficulty hearing, seeing, or speaking, and the lack of a consistently available caregiver to assist with a telehealth visit.¹⁸

Key Points

- COVID-19 increased video-based telehealth use in home-based primary care (HBPC).
- Barriers to telehealth access include a lack of caregiver support, as well as cognitive or sensory decline.

Why Does this Paper Matter?

Expansion of telehealth use in HBPC will require identifying and addressing individual patient barriers.

The Mount Sinai Visiting Doctors Program (MSVD), a large HBPC program based in Manhattan, received a grant from the Federal Communications Commission (FCC) in April 2020 to distribute video-based telehealth devices to patients without telehealth access. To better target device distribution, we rapidly assessed the provider-perceived telehealth capabilities, barriers, and needs of MSVD's homebound population. Our survey focused on video-based rather than telephone-based telehealth because MSVD physicians provided telephone-based care extensively even before the COVID-19 pandemic,¹⁹ and because our grant was focused on the provision of video-based devices. Moreover, video-based telehealth has been shown to be feasible, and in some cases preferable, to the provision of healthcare services by telephone in older adults with mild cognitive impairment.²⁰ Our aims were to understand existing video-based telehealth usage and capability among MSVD's patients and to determine which patients might be most likely to benefit from receiving a new video-based telehealth device. Querying MSVD providers, who often have long-term relationships with patients and unique insight into their resources, allowed for rapid collection of patient information to accelerate appropriate device dissemination.

METHODS

Setting

MSVD serves over 1000 homebound older adults with multiple comorbidities and high symptom burden.²¹ In April 2020, during the first NYC COVID-19 surge, MSVD rapidly shifted to remote care provision and restricted house calls to only the most urgent matters. No MSVD

patients had engaged in video-based telehealth encounters prior to COVID-19.

Sample

All 16 MSVD physician providers were emailed a RED-Cap survey and asked to complete it for each of their patients. The providers were queried from June 23 to July 8, 2020 on their patients' video-based telehealth use since the beginning of April 2020. Providers completed surveys for all 1065 active MSVD patients. A total of 192 patients living in congregate housing with access to video-based telehealth devices through their housing sites were excluded from further analysis, yielding a total sample of 873 patients.

Measures

An 11-item questionnaire was developed with the goal of identifying patients to supply with a video-based telehealth device. The questionnaire was refined based on feedback from two MSVD providers who tested the survey prior to wider distribution. Physicians were asked if they believed their patients would benefit from receiving a device and would be willing to try a telehealth visit. They were asked about patients' existing access to telehealth, ability to interact over video without a caregiver present to assist, and potential benefit from remote clinical monitoring using a blood pressure cuff and pulse oximeter. Finally, physicians were asked to elaborate on barriers to access among their patient population, with questions regarding internet connectivity, ability to pay for data plans, and access to a computer or video-enabled device. Branching logic was employed to hide sections that did not apply for a given patient, minimizing the number of questions asked wherever possible. The full provider survey is provided in Appendix S1.

Demographic information and dementia determination were extracted from the electronic medical record. Dementia determination follows the CCW formula for Alzheimer's Disease, Related Disorders, or Senile Dementia.²² Comorbidities were determined by Elixhauser count via ICD-10 codes. Missing data (<10%) were extracted manually via chart review.

Analysis

All data were deidentified and descriptive analyses were conducted. Open-ended responses were read in full;

where possible, common themes among answers were identified and tallied for discussion. This study received an exempt determination from Icahn School of Medicine at Mount Sinai's Program for the Protection of Human Subjects (IRB-20-03724).

RESULTS

MSVD patient demographics

The patients were on average 82.7 years old (SD 13.7), predominantly female (74.8%), white (32.2%), English speaking (82.6%), unpartnered (68.6%), and with a median length of stay in MSVD of 42 months (Table 1). Similar to those in other HBPC programs, almost half (46.6%) of the MSVD patients had dementia.¹ Patients had a mean of 4.0 comorbidities.

Provider survey

By the end of June 2020, 310 out of the 873 patients (35%) had engaged in at least one first-time video-based telehealth encounter (Figure 1A). Of these "tele-experienced" patients, 15% used Mount Sinai's health portal (MyChart), 46% used FaceTime, and 44% used another service for their video encounter. Eighty-two percent of these tele-experienced patients required assistance from a family member, a home health aide, or both to complete the visit (37%, 35%, and 10%, respectively). A total of 563 (65%) "tele-naïve" MSVD patients had not participated in a video-based telehealth encounter by the end of June 2020. Providers were asked about patients' ability to engage in a video-based telehealth encounter and whether they would require assistance to do so (Figure 1B). Among tele-naïve patients, providers deemed 27% ($n = 153$) to be "unable to interact over video." Common reasons cited included advanced dementia, other cognitive impairment, and blindness/deafness. Providers indicated that almost 50% ($n = 274$) of the tele-naïve patients would need help to interact over video. Among these patients, providers indicated that 28% ($n = 78$) do not have a caregiver present who would be able to assist.

Physicians reported that they did not know what technological and economic barriers to video-based telehealth may exist for the majority of their patients. These included whether the patient has sufficient internet connectivity at home ("Don't Know": 72%, "Yes": 14%, "No": 13%), has challenges paying cellular plan costs ("Don't Know": 65%, "Yes": 22%, "No": 12%), or has access to a device with video capability ("Don't Know": 48%, "Yes": 9%, "No": 42%).

TABLE 1 Demographic characteristics of patients

	Full sample (873)	Tele-experienced ^a (310)	Tele-naïve ^b (563)
Age (mean)	82.7 (SD: 13.7)	83.2 (SD: 13.9)	82.4 (SD: 13.6)
Time in MSVD program (months, median)	42 (IQR: 42.0)	42 (IQR: 41.5)	41 (IQR: 42)
Has dementia, frequency (%)	407 (46.6)	166 (53.5)	241 (42.8)
Elixhauser comorbidity count	3.95 (SD: 2.62)	4.23 (SD: 2.65)	3.80 (SD: 2.59)
Sex, frequency (%)			
Female	653 (74.8)	231 (74.5)	442 (75.0)
Male	220 (25.2)	79 (25.5)	141 (25.0)
Race/Ethnicity, frequency (%)			
White	281 (32.2)	123 (39.7)	158 (28.1)
Black/African American	117 (13.4)	30 (9.7)	87 (15.5)
Hispanic	185 (21.2)	64 (20.6)	121 (21.5)
Asian	14 (1.6)	11 (3.5)	3 (0.5)
Other	107 (12.3)	32 (10.3)	75 (13.3)
Unknown	169 (19.4)	50 (16.1)	119 (21.1)
Language, frequency (%)			
English	721 (82.6)	257 (82.9)	464 (82.4)
Spanish	127 (14.5)	39 (12.6)	88 (15.6)
Chinese (all forms)	9 (1.0)	6 (1.9)	3 (0.5)
Other/Unknown	16 (1.8)	8 (1.4)	8 (1.4)
Marital status ^c , frequency (%)			
Partnered	173 (19.8)	68 (21.9)	105 (18.7)
Un-partnered	599 (68.6)	216 (69.7)	383 (68.0)
Unknown/Other	101 (11.6)	26 (8.4)	75 (13.3)

^aPatients who had engaged in at least one video-based telehealth encounter by the end of June 2020.

^bPatients who had not yet engaged in a video-based telehealth encounter by the end of June 2020.

^c“Partnered” was defined as being listed as one of the following: “Married/Civil Union” or “Significant Other/Life Partner.” Unpartnered was defined as being listed as one of the following: “Single,” “Divorced,” “Widowed,” and “Legally Separated/Separated.”

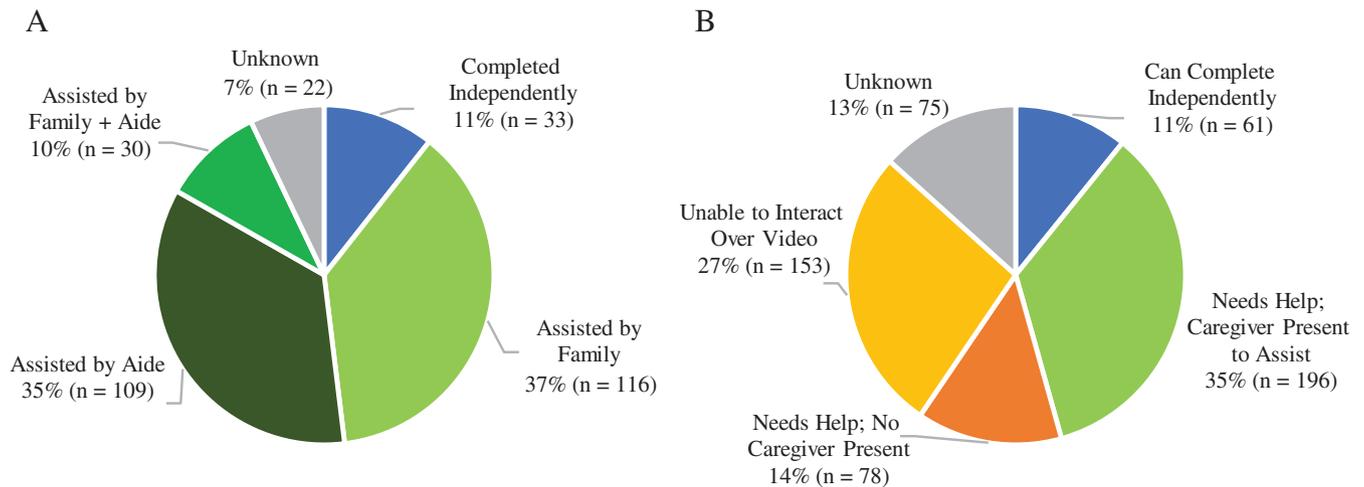


FIGURE 1 (A) Assistance required for homebound patients with past telehealth visits (B) Telehealth capacity among homebound patients not currently engaged in telehealth

TABLE 2 Data collection sheet developed for MSVD Practice

Electronic medical record data collection sheet		
Questions	Response options	
1. Has this patient completed a telehealth video visit before?	Yes	No
If yes to 1, ask 2–13:		
2. MyChart app?	Yes	No
3. MyChart via Caregility?	Yes	No
4. Doximity?	Yes	No
5. VSee	Yes	No
6. Zoom	Yes	No
7. WhatsApp	Yes	No
8. FaceTime Video	Yes	No
9. Skype	Yes	No
10. Other	Yes, please specify	No
11. Did the patient require assistance from a caregiver?	Yes	No
12. Who assisted the patient?	Family member/Friend, Home health aide, Spouse/Partner, Other—specify	
13. What is their availability?	Free text	
If no to 1, ask 14–18:		
14. Load communications section of preexisting flow sheet		
15. Does this patient have a video enabled device?	Yes	No
16. Does this patient have access to broadband internet connection or a cellular data connection good enough to support a video call?	Yes	No
17. Can this patient afford to pay the cellular or internet costs required for a video call?	Yes	No
18. Do you think this patient will require assistance from a caregiver to complete a telehealth visit over video?	Yes	No
If yes to 18, ask 19 and 20:		
19. Who could assist the patient?	Family member/Friend, Home health aide, Spouse/Partner, Other—specify	
20. What is their availability?	Free text	
For all patients:		
21. Other pertinent information to assist with a telehealth visit over video for this patient?	Free text	
22. Was this patient given a Vivify tablet?	Yes	No
23. Registration # of tablet	Free text for #	

DISCUSSION

COVID-19 has exacerbated existing challenges faced by homebound patients like those at MSVD, increasing social isolation while complicating the delivery of their medical care.^{23,24} Although past studies have enumerated multiple

barriers to telehealth use among older adults,²⁵ we have built on this work by assessing the provider perspective on telehealth barriers of an isolated homebound population at a time when in-person clinical visits were not possible.

Our results demonstrate that a rapid and dramatic increase in video-based telehealth use among this

population is possible. In just a 4-month period after the pandemic's onset, 35% of our patients received their first MSVD video-based telehealth encounter primarily through consumer platforms rather than institutional ones. By contrast, a study from 2019 investigating the feasibility of telehealth in a homebound population of older New Yorkers found that one HBPC practice was able to complete video-based telehealth encounters with only 8% of their "medically stable" patients.²⁶ This shift highlights both the ability and willingness of patients and physicians to adapt to new modes of communication, as well as opportunities presented by the relaxing of HIPAA requirements in the use of consumer rather than institutional platforms.

However, the large number of homebound patients who were still unable to engage in telehealth supports the need for innovative, patient-tailored strategies to support video-based encounters. Although the vast majority of tele-naïve MSVD patients were deemed unable to engage in a video-based telehealth encounter independently, a large proportion of these patients also had a caregiver available who would be able to assist them to do so. Patients without caregivers present may benefit from novel approaches such as support from community health workers (CHWs) to assist with video-based telehealth visits.²⁷ A CHW-assisted telehealth strategy may prove especially efficient for patients living in congregate housing and other settings with high population density.

It is important to understand each patient's abilities and recognize that telehealth is not a tenable method of healthcare access for all patients. Certain factors such as advanced dementia and cognitive or sensory impairment may leave in-person visits the only viable option for some of our most isolated patients. Access also remains a barrier. About a third of Americans in rural areas cannot access sufficient internet to support video-based telehealth visits, complicating efforts to provide remote care.²⁸ Further study is needed to ensure that increased video-based telehealth use does not worsen existing inequities,²⁹ hinder communication between patients and providers, or lead to missed diagnoses and worse outcomes for older patients.³⁰

We also found that physicians are not necessarily aware of the specific nonmedical barriers their patients might face in access to telehealth despite having longstanding relationships with patients. In order to bridge this gap within the MSVD practice, we have implemented a data collection sheet within our electronic medical record to capture actionable telehealth data on our patients (Table 2). Tiered questions give providers quick and accessible insight into how and when to conduct a video-based telehealth encounter with each

patient. Collection of targeted data on telehealth capacity will ease future efforts to expand video-based telehealth usage in the homebound population. In addition, removing physical barriers by providing devices with cellular capability may further facilitate the provision of medical care when home visits are not possible.

Limitations

Surveying physicians proved an efficient and thorough way to solicit feedback and stratify patients based on potential use patterns, but also highlighted limitations of not assessing patients or their proxies directly. The large number of "Don't Know" responses when physicians were asked about patients' internet connectivity, ability to pay for cellular plans, and video-capable device access suggests that physicians may be poor reporters when considering their patients' access issues. Future telehealth capacity surveys may benefit from a combined approach, asking physicians about the direct clinical benefit of intended interventions and turning to patients to discuss issues of access instead.

CONCLUSION

The COVID-19 pandemic resulted in a large and dramatic shift to video-based telehealth use at MSVD, an urban HBPC practice in NYC. We identified multiple barriers to usage including lack of caregivers and lack of access to appropriate technology. Novel approaches such as providing telehealth-ready devices and the deployment of CHWs to assist with device setup will be necessary to assist many homebound patients who cannot independently navigate telehealth. Health systems need to systematically collect information on patient telehealth capacity to help reduce barriers to telehealth use.

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CONFLICT OF INTEREST

No relevant disclosures.

AUTHOR CONTRIBUTIONS

All authors have read and approved of the submission of this manuscript. Katherine A. Ornstein and Peter M. Gliatto contributed to the study concept and design. Alexander V. Kalicki and Kate A. Moody contributed to

the survey design as well as the acquisition, analysis, and interpretation of data. All authors contributed significantly to drafting and revising the manuscript. Katherine A. Ornstein obtained funding and provided study supervision.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

Appendix S1. Assessment of provider perceptions of patients' experience with and barriers to telehealth.

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